

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM G. HAWKINS and CATHIE J. BURKE

Appeal No. 96-3998
Application No. 08/344,397¹

ON BRIEF

Before HAIRSTON, JERRY SMITH and RUGGIERO, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 16, 18, 20-24 and the rejection of claim 28 added in an amendment after final rejection filed October 27, 1995 which was entered by the Examiner. The above claims constitute all

¹ Application for patent filed November 23, 1994. According to the appellants, the application is a continuation of Application No. 07/971,873, filed November 5, 1992.

the claims pending in the application. Claims 1-15, 17, 19, and 25-27 have been canceled.

The claimed invention relates to a thermal ink jet printhead with an incorporated field plated power MOS driver transistor. Appellants state at page 6 of the specification that the particular transistor structure illustrated in Figures 4, 5A, and 5B of the drawings results in a reduction in size and enhanced transconductance without decreasing breakdown voltage.

Claim 16 is illustrative of the invention and reads as follows:

16. A thermal ink jet printhead comprising:
a silicon substrate having a surface;

a plurality of MOS transistors, each of said plurality of MOS transistors located adjacently to another of said MOS transistors, each of said MOS transistors comprising,

a) a drain region comprising a contact region formed in said substrate adjacent said surface and a drift region formed in said substrate adjacent to said contact region, said drift region being lateral to and in substantially non-subtending relation with said contact region;

b) a source region substantially surrounding said drain region, said source region formed in said substrate adjacent to said surface, said source region defining with said drift

Appeal No. 96-3998
Application No. 08/344,397

region a channel region with the channel region being located between said source region and said drift region;

c) an insulative layer present on said surface of said substrate, said drift region and the channel region subtending said insulative layer, a first portion of said insulative layer, subtended by said drift region, having a thickness greater than a second portion of said insulative layer, subtended by the channel region;

Appeal No. 96-3998
Application No. 08/344,397

d) a single polysilicon layer having a predetermined thickness and resistivity present on said insulative layer, said single polysilicon layer including a polysilicon field plate portion subtended by said first portion of said insulative layer, serving as a field plate, and a gate portion subtended by said second portion of said insulative layer, serving as a gate, whereby said polysilicon field plate portion provides for increased transconductance of said transistor without reducing breakdown voltage to minimize the spacing between said source region and said drain region;

e) a drain contact contacting said contact region; and

f) a source contact contacting said source region, said source contact spaced from said drain contact, extending laterally towards said drain contact no further than said polysilicon field plate portion;

a plurality of heater elements, each of said heater elements connected to one of said plurality of MOS transistors; and

a plurality of orifices for expelling ink droplets, each of said orifices operatively associated with one of said plurality of heater elements.

The Examiner relies on the following references²:

Yoshida et al. (Yoshida)	4,599,576	Jul. 08,
1986		
Fujihara	5,089,871	Feb.
18, 1992		

² The Examiner additionally relies on Appellants' admissions of the prior art.

Appeal No. 96-3998
Application No. 08/344,397

Ricoh (Japanese Kokai)³ 2-87675 Mar. 28,
1990
Martin et al. (Martin), "850V NMOS Driver with Active
Outputs," IEDM, published 1984, pp. 266-269.

The rejections of the appealed claims are set forth by
the Examiner as follows⁴:

1. Claims 16, 18, 20-24, and 28 stand rejected under
35 U.S.C. § 103 as being unpatentable over Ricoh together with
Fujihara and Martin.

2. Claims 16, 18, 20-24, and 28 stand rejected under
35 U.S.C. § 103 as being unpatentable over Ricoh together with
Fujihara, Martin, the admitted prior art and Yoshida.

Rather than reiterate the arguments of Appellants and the
Examiner, reference is made to the Brief and Answer for the
respective details thereof.

OPINION

³ As noted by the Examiner at page 4 of the Answer,
Appellants filed an English translation of this Kokai
reference as paper no. 7 on April 26, 1994. This translation
has been used by the Examiner in formulating the rejection and
will also be relied on in this decision.

⁴ The statement of the grounds of rejection in the
Examiner's Answer incorrectly includes canceled claims 17 and
25-27 as rejected claims. The rejected claims on appeal are
claims 16, 18, 20-24, and 28.

Appeal No. 96-3998
Application No. 08/344,397

We have carefully considered the subject matter on appeal, the rejections advanced by the Examiner and the evidence of obviousness relied upon by the Examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellants' arguments set forth in the Brief along with the Examiner's rationale in support of the rejections and arguments in rebuttal set forth in the Examiner's Answer. It is our view, after consideration of the record before us, that the collective evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 16, 18, 20-24, and 28. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so

Appeal No. 96-3998
Application No. 08/344,397

doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v.

Appeal No. 96-3998
Application No. 08/344,397

Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933

(Fed.

Cir. 1984). These showings by the Examiner are an essential part

of complying with the burden of presenting a prima facie case of

obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d

1443, 1444 (Fed. Cir. 1992).

As indicated by the cases just cited, the Examiner has at least two responsibilities in setting forth a rejection under 35 U.S.C. § 103. First, the Examiner must identify all the differences between the claimed invention and the teachings of the prior art. Second, the Examiner must explain why the identified differences would have been the result of an obvious modification of the prior art. In our view, the Examiner has not properly addressed his first responsibility so that it is impossible that he has successfully fulfilled his second responsibility.

Appeal No. 96-3998
Application No. 08/344,397

With respect to the sole independent claim 16, the
Examiner has never attempted to show how each of the claimed
limitations

is suggested by the teachings of the applied prior art.

Instead, the Examiner makes the broad general assertion at page 5 of the Answer:

Ricoh teaches a high voltage MOSFET with a drift region and dual thickness gate insulator under a stepped gate, as here claimed. It would clearly have been obvious to use Ricoh's high voltage MOSFET structure in the admittedly known "thermal ink jet printhead" ICs.

The Examiner, however, never provides any factual support for the apparent contention that the MOSFET structure of Ricoh corresponds to the claimed MOS transistor structure of claim 16.

Appellants, for their part, argue (Brief, page 9) that there is no suggestion in any of the references to make the proposed combination and even if such combination could be made, such combination would lack the features as claimed. In particular, Appellants point to the lack of teaching in any of the references of the limitation recited in subparagraph f) of independent claim 16 as follows:

a source contact contacting said source region, said source contact spaced from said drain contact, extending laterally towards said drain contact no further than said polysilicon field plate portion;

Appeal No. 96-3998
Application No. 08/344,397

After careful review of the references of record, we are in agreement with Appellants' stated position in the Brief. The Examiner offers no indication as to where such limitation is found in the prior art nor offers any analysis as to the obviousness of such limitation and, in fact, has chosen to completely ignore Appellants' arguments as to this particular limitation. In view of the above, we are constrained to hold that, on the record before us, the Examiner has failed to establish a prima facie case of obviousness of independent claim 16 based on Ricoh or any of the other applied prior art.

We further note that even assuming, arguendo, that the recited limitations of claim 16 are found in various ones of the prior art references, the Examiner's rejection is totally lacking in any rationale as to how and why the skilled artisan would modify the prior art to arrive at the claimed invention. We are left to speculate why one of ordinary skill would have found it obvious to modify Ricoh or any of the other applied prior art to make the combination suggested by the Examiner. The only reason we can discern is improper hindsight reconstruction of Appellant's claimed invention.

Appeal No. 96-3998
Application No. 08/344,397

Since, for all of the reasons discussed above, we are of the view that the prior art applied by the Examiner does not support the rejection, we do not sustain the rejection of independent claim 16. Therefore, we also do not sustain the rejection of dependent claims 18, 20-24, and 28.

In conclusion, we have not sustained the Examiner's rejection of any of the claims under 35 U.S.C. § 103. Accordingly, the decision of the Examiner rejecting claims 16, 18, 20-24, and 28 is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
JERRY SMITH)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
JOSEPH F. RUGGIERO)	
Administrative Patent Judge)	

jrg

Appeal No. 96-3998
Application No. 08/344,397

Ronald Zibelli
Xerox Corporation
Xerox Square 20A
Rochester, NY 14644

Appeal No. 96-3998
Application No. 08/344,397